PROGRESS

OF

MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM OSLER, M.D.,
REGIUS PROFESSOR OF MEDICINE, OXFORD UNIVERSITY, ENGLAND,
AND
W. S. THAYER, M.D.,
PROFESSOR OF CLINICAL MEDICINE, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND.

The Blood in Myxœdema.—BENEE and ENGEL (*Wien. klin. Woch.*, 1908, xxi, 905) report the blood findings in 5 cases of myxœdema. Frequently a mild secondary anemia is present. The most marked alteration occurred in the leukocytic formula. Differential counts showed the following: polymorphonuclear neutrophiles 58 to 39 per cent.; lymphocytes 36 to 56 per cent.; eosinophiles 4.9 to 15.8 per cent.; mononuclears 2.4 to 8 per cent. The eosinophilic myelocytes were found. Thyroidectomized animals show a lymphoid metaplasia of the bone marrow and this, Benee and Engel say, explains the lymphocytosis. The eosinophilia they look upon as the result of positive chemotaxis from substances circulating in the blood. The total number of the leukocytes was normal (one case 12,400).

The Finding of Products of the Adrenals in the Blood and the Urine.—WATERMAN and BODDAERT (*Deut. med. Woch.*, 1908, xxxiv, 1102) doubt the accuracy of previously reported observations, in which adrenalin in increased amounts is said to have been found in the blood and urine of nephritics, leading to the assumption of a hypersecretion of the adrenals in this disease. They show that the ferric chloride test for adrenalin may be given by pyrocatechin and salicylic acid, bodies closely related to adrenalin which is methylamido-acetopyrocatechin. The colors vary a little with these substances, that with salicylic acid being more violet, but in the pigmented urine or serum the color tests are unreliable.

Using Ehrmann's test (dilatation of the enucleated frogs eye) they find that pyrocatechin is strongly mydriatic (1 to 500 in 0.9 per cent. NaCl solution). Resorcin, hydrochinon, and salicylic acid are less powerful mydriatics. They have had no experience with Meyer's test (the bloodvessel of a freshly killed ox is placed in the solution to be tested; if it contracts, adrenalin is assumed to be present), but Schlayer reported negative results with this test, using the blood and urine of nephritics.

Waterman and Boddaert conclude that the presence of abnormal amounts of adrenalin in the blood and urine of nephritics is, as yet, not satisfactorily demonstrated.

"Duodenal" Diabetes.—EICHLER and SILBERGLEIT (*Berl. klin. Woch.*, 1908, xiv, 1172) based their study on a report by Zock, of two cases of gycosuria following the taking of alkali with suicidal intent. He observed that the duodenal mucosa was destroyed, while the pancreas remained uninjured. The production of a similar lesion is a dog also led to glycosuria, hence the assumption of a duodenal glycosuria in man and dog, the result of destruction of the duodenal mucosa.

Eichler and Silbergleit repeated Zock's experiment, using a somewhat different technique. After opening the abdomen aseptically, they injected 4 to 6 c.c. of concentrated sodium hydrate into the duodenum. Glycosuria resulted in 2 cases. In 2 other dogs glycosuria was produced by applying the Pacquelin cautery to the duodenal mucous membrane and destroying it. Other parts of the small intestine were next tried to see whether the action from destruction of the duodenal mucosa was specific. In 3 of 4 instances glycosuria ensued after lesions produced in the ileal mucosa. In all the dogs the pancreas showed nothing abnormal. The glycosuria was of short duration, disappearing on the fourth day after operation.

The authors look upon the plycosuria as being the result of the severe shock to the nervous system; the glycogen of the liver is thrown into the blood and is excreted in the urine. They conclude that it is not justifiable to speak of "duodenal diabetes" in man or dog.

Chyluria.—LÜDKE (*Münch. med. Woch.*, 1908, lv, 1369) reviews the cases of non-parasitic chyluria reported in the literature and reports one new case, which followed a colon bacillus cystitis. No etiological factor could be found. There was no chylemia; diet had no effect in increasing or diminishing the fat content of the urine. The daily excretion of fat in the urine amounted to 6 to 8 grams. The prognosis is not unfavorable. No effective remedies are known. The condition is very rare.

A New Function of the Pancreas and its Relation to Diabetes Mellitus.—LOEWI (*Arch. f. exp. Path. u. Pharmakol.*, 1908, lix, 83) has studied the mydriatic action of adrenalin in animals after the extirpation and after partial destruction of the pancreas in cats and dogs. In these animals normally one finds no mydriasis after instillation of adrenalin solutions. When the pancreas has been extirpated, he finds that adrenalin solution now has a mydriatic effect. Partial destruction of the pancreas gave inconstant results, mydriasis being present in some instances—absent in others. Loewi now instilled adrenalin into the conjunctiva of man. Three drops of 1 to 1000 adrenalin solution was used and the dose was repeated in five minutes. The pupil was carefully measured; the results showed, however, that when mydriasis occurred it was visible to the unaided eye. In 36 cases—healthy adults, as well as those suffering with nephritis, carcinoma, tuberculosis, anemia, icterus, heart disease, adiposity, pneumonia, tabes, and rheumatism—no mydriasis was observed. Of 3 cases of Basedow's disease, 1 showed a marked dilatation of the pupil, due, the author believes, to increased irritability of the sympathetic. 18 diabetics were now examined. In 8 cases the instillation was without result; these included mild and severe diabetes: 1 patient in coma who had previously given a positive response, and 1 case of diabetes with acromegaly. In the 10 remaining cases of diabetes mellitus a marked dilatation of the pupil occurred within thirty to sixty minutes after instillation of the adrenalin, the cases ranging from mild to severe, including 1 in coma. Loewi concludes that (1) a positive test means pancreatic disease; (2) in a diabetic it indicates pancreatic diabetes; (3) the absence of the reaction does not exclude the pancreatic origin of the disease.

The Importance of Urobilinuria in the Diagnosis of Diseases of the Liver.—FISCHLER (*Münch. med. Woch.*, 1908, lv, 1421) has studied the cases of urobilinuria and urobilinogenuria in Krehl's clinic, with interesting results. Urobilin and urobilinogen are formed from bilirubin in the intestines by the reducing action of bacteria. Both are absorbed and carried again into the liver. Fr. Müller's observations are the basis of subsequent work; in a patient with complete closure of the ductus choledochus, he showed that there was abundant bilirubin, but no urobilin. The patient was then given bile by the stomach tube, and in three days urobilin was found in the urine in addition to bilirubin. The same results have been obtained experimentally in dogs. Normally, urobilin and urobilinogen are absent from the urine or are present only in traces. They are found in the urine practically only in those conditions in which the liver is diseased, according to Fischler's observations. The tests for these bodies are of importance in the diagnosis and prognosis of obstructive jaundice, since they enable one to determine whether any bile enters the intestine. In Laennec's cirrhosis of the liver these bodies are always present in the urine, and their presence or absence may be important differential diagnostic signs of this disease. So, too, in chronic passive congestion of the liver, acute infectious diseases, pulmonary tuberculosis, the presence of urobilin indicates that the liver is diseased.

The Spectroscopic Determination of Blood in the Urine.—SCHUMM (*Münch. med. Woch.*, 1908, lv, 1488) calls attention to several points which may prove helpful in detecting minute quantities of blood in the urine. In making spectroscopic examination of the urine for blood, he points out that it may be recognized in quantities as small as 1 to 2000, when the urine is contained in the usual test tube; if the layer of urine through which the light must pass is made much thicker, the delicacy of the test is greatly increased. Thus when urine is put into the usual polariscope tube of 20 cm. length, the bands of oxyhemoglobin may be recognized in a dilution of 1 to 25,000 (amounting to about one drop of blood in the twenty-four-hour urine). If oxyhemoglobin has been changed to methemoglobin or hematin, the urine must first be extracted and then examined for the bands of hemochromogen.

The Stomach Contents in Gastric Carcinoma.—H. FISCHER (*Deut. Archiv f. klin. Med.*, 1908, lxxxiii, 98) studied protein digestion produced by the gastric juice, obtained from 2 cases of carcinoma of the stomach, each a year old. Normally, the gastric juice does not split protein to diamino-acids, and it is as yet unsatisfactorily shown that monamino-acids are formed. In gastric carcinoma, on the other hand, Fischer has demonstrated that a ferment is present capable of splitting the proteins into mono- and di-amino-acids. This, then, may prove of value in the diagnosis of gastric carcinoma, after a simpler technique for the recognition of di-amino-acids is found. The puzzling HCl deficit in gastric carcinoma is also explained by Fischer's experiments. Emerson's experiments seemed to show that alkaline bodies arise in gastric cancer, but at that time Emil Fischer had not demonstrated that the protein molecule is formed of amino-acids linked together (smaller groups, peptids). In carcinoma the HCl unites with the amino radicle, the body thus formed reacting acid to litmus, whereas, the peptid ununited with HCl is alkaline to litmus. The result in gastric carcinoma is that the total acidity increases, free HCl disappears; indeed a point is reacted where the HCl present no longer suffices to satisfy all the free amino groups, that is, where HCl must be added to neutralize the amino-radicles before the reaction for free HCl is obtained.

The Use and Value of Tuberculin in the Diagnosis of Pulmonary Tuberculosis.—L. HAMMAN (*Archiv. of Inter. Med.*, 1908, i, 443), after a complete review of the previous literature of this subject, gives in detail the results in many cases of the subcutaneous, eye, and skin tuberculous reactions and concludes that while tuberculin is a valuable aid in the diagnosis of pulmonary tuberculosis, it must be used with care and the results interpreted with caution. The reaction is specific, and it must be borne in mind that a very insignificant lesion may produce tuberculin hypersensitiveness; the prevalence of such lesions should be fully realized. A negative, reaction is decisive information as is also a focal reaction. In the absence of a focal reaction, tuberculin hypersensitiveness must be valuable as one phase of the clinical picture, and our judgment not too much warped by its presence. The cutaneous reaction is too delicate an indicator to be of any value in diagnosis unless the reaction be negative, which it seldom is in adults. The eye reaction gives results more nearly in accord with clinical experience, but by no means absolutely certain, and Hamman feels that it cannot supplant the subcutaneous method. In comparing the last two methods, they should not be used simultaneously; the eye inoculation should precede the subcutaneous by at least a few days.

The Gastric Secretion in Nephritis.—ENRIQUEZ and AMBARD (*Sem. méd.*, 1907, xxxv, 409) note that deprivation of salt in diets has an effect on the gastric secretions both in cases of hyperchlorhydria and hypochlorhydria, causing, in both instances, a drop or increase in the hydrochloric acid and so a return to the normal secretion or thereabouts. Enriquez and Ambard claim that every nephritis has a more or less marked influence on the gastric secretion. In very slight kidney lesions there is usually manifested a hyperchlorhydria, this being most probably due to the excess of salt in the body which salt stimulates the gastric secretion. Retention of salt then increases the secretion and deprivation of salt reduces it, as has been shown experimentally in dogs. In more severe nephritis with albuminuria, however, the retention of salt alters the gastric secretion, but this excess of salt has an irritating effect on the stomach as on the kidneys; this irritating and therefore depressing action overcomes the stimulative action which would produce a hyperchlorhydria and so hypochlorhydria results. The deprivation of salt then allows the stomach mucosa to recover its tone and overcome this depressant action even before the general salt balance throughout the body is restored. Thus dechloridation may be followed by a slight, transient hyperchlorhydria. Enriquez and Ambard believe that the effect of salt deprivation on altered secretions of the stomach opens up a new field for the study of its many diseases, and may have great influence on some of the modes of treatment in gastric disorders which at present have no apparent connection with each other.

Excretion of Urotropin in the Bile and Pancreatic Juice.—S. J. CROWE (*Johns Hopkins Hosp. Bull.*, 1908, xix, 109) notes that for many years substances excreted in the bile have been more or less carefully studied in the hope of finding a suitable antiseptic capable of being excreted in sufficient strength to act favorably in injections. The part played by the typhoid bacillus in the gall-bladder, whether as an infective agent, as in the dangerous chronic carriers of disease, or as the starting point of gallstones, led Crowe to experiment with urotropin (hexamethylenamen), which has been already used so successfully in bacilluria and can so easily be detected by tests. In the animals experimented upon it was found that urotropin, when administered by mouth, was rapidly absorbed and remained in the circulating blood twenty-four hours, with a maximum concentration five to eight hours after giving the drug. In dogs it is excreted in the bile, pancreatic juice, and directly through the wall of the gall-bladder. It was found to be present in the saliva and milk of dogs after the intravenous injection of 1 gram. With this experimental data at hand Crowe was able to study the effects of this drug on several surgical cases with biliary fistulæ. These cases showed a rapid disappearance of the organisms from the infected bile following the use of the drug, and the fistulæ closed rapidly. In another case in which the injection was made into the cerebrospinal fluid, and in one case of gonococcal arthritis the infection rapidly cleared up on the administration of the drug. Crowe was able to demonstrate its excretion in the bile, cerebrospinal fluid, saliva, pleural exudate and the blood in man; he also found that after single large doses, 75 grains per diem, it appears in the bile in quantities which exercise a decided bactericidal action. The large doses in the cases studied caused no gastric symptoms or no hematuria, but in one case there developed painful and frequent micturition which stopped promptly on withholding the drug for a few days. Crowe believes that the drug may be of great value in acute affections of the gall-bladder, as a prophylactic in typhoid convalescence, against the possible subsequent formation of gallstones or the development of chronic bacillus carriers, and, lastly, as a general prophylactic before gall-bladder operations.